

## ABSTRACT

The present invention provides an RF module capable of outputting balanced electromagnetic waves without requiring adjustment and easily realizing miniaturization. The RF module includes: a waveguide (3) having an area which is surrounded by a pair of ground electrodes (6) and (7) provided so as to face each other and through holes (8) for making electric conduction between the pair of ground electrodes (6) and (7) and in which electromagnetic waves in the TE mode can propagate and a one-wavelength resonator (11) is formed; and a pair of output lines (4a) and (4b) connected to portions corresponding to half-wavelength resonance regions (A) and (B) of the one-wavelength resonator (11) in the ground electrode (6).